

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113268 A1

(51) International Patent Classification⁷: C07C 213/10,
215/12, 215/08

TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(21) International Application Number:
PCT/GB2004/002023

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 12 May 2004 (12.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0307542 23 June 2003 (23.06.2003) FR

Declarations under Rule 4.17:
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
— of inventorship (Rule 4.17(iv)) for US only

(71) Applicant (for all designated States except US): BP CHEMICALS LIMITED [GB/GB]; Chertsey Road, Sunbury on Thames, Middlesex TW16 7BP (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRUN-BUISSON, Daniel [FR/FR]; Quartier le Deven, F-13800 Istres (FR). MAUVEZIN, Mathias [FR/FR]; Le Venise, Bat C, Quai Alsace Lorraine, F-13500 Martigues (FR). PONSI, Florence [FR/FR]; Parc Saint Roch, 16 Allee des Amandiers, F-13530 Trets (FR).

(74) Agent: PREECE, Michael; BP International Limited, Patents & Agreements, Chertsey Road, Sunbury on Thames, Middlesex TW16 7LN (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,

Published:

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR PREPARING ETHANOLAMINE WITH IMPROVED COLOUR

(57) **Abstract:** The present invention relates to a process for preparing an ethanolamine having an improved colour quality. The process comprises contacting ethanolamine with an activated carbon free of one or more metals chosen from Re, Ru, Rh, Pd, Os, Ir, Pt and Ag. The contacting can be carried out at a temperature of from 10 to 200°C, and during a period sufficient to reduce the colour of the ethanolamine, in particular a period such that the colour index (as measured according to the ASTM standard D 1209) of the ethanolamine becomes equal to or less than 50 or 40 Pt/Co. The contacting can be carried out during or after the stage of preparation of the ethanolamine, preferably during or after the stage of purification of the ethanolamine. The invention also relates to a process for manufacturing a triethanolamine (TEA) having an improved colour quality, comprising a stage (i) of synthesis of the TEA by contacting ammonia with ethylene oxide in aqueous medium, a stage (ii) of separation of a crude TEA from the aqueous medium and a stage (iii) of purification of the TEA by distillation. The process in addition comprises contacting the crude or purified TEA with an activated carbon free of one or more metals chosen from Re, Ru, Rh, Pd, Os, Ir, Pt and Ag, after the separation stage (ii), or during and after the purification stage (iii). The advantage of the claimed invention is to provide an ethanolamine which has an improved colour quality far more resistant over time, and which is obtained in the absence of any additive or metal catalyst known to contaminate the ethanolamine.

WO 2004/113268 A1